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IN THE UNI1450TED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Chae-Man LIM

Examiner: Kevin C. Harper

Serial No.: 09/558,237

Group Art Unit: 2666

Filed: April 24, 2000

Docket: 678-475

For: **CELL SEARCH APPARATUS AND METHOD IN CDMA MOBILE COMMUNICATION SYSTEM**

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

TRANSMITTAL OF APPELLANT'S SECOND AMENDED APPEAL BRIEF

Sir:

Enclosed please find APPELLANT'S SECOND AMENDED APPEAL BRIEF in response to the Notification of Non-Compliant Appeal Brief dated August 22, 2006.

Respectfully submitted,

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CERTIFICATE OF MAILING 37 C.F.R. §1.8(a)

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Dated: September 20, 2006

Michael J. Musella

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Chae-Man LIM

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Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SECOND AMENDED APPEAL BRIEF

REAL PARTY IN INTEREST

The real party in interest is Samsung Electronics Co, Ltd, the assignee of the subject application, having an office at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea.

RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge and belief, there are no currently pending related appeals, interferences or judicial proceedings.

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8 (a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postpaid in an envelope, addressed to the: Commissioner for Patents, Alexandria, VA 22313-1450, Mail Stop Appeal Brief-Patents on September 20, 2006.

Dated: September 20, 2006

Michael J. Musella

STATUS OF CLAIMS

Original Claims 1-18 were filed on April 24, 2000. Claims 1, 5, 9 and 14 were amended in an Amendment filed November 5, 2004. Thus, Claims 1-18 are pending in the Appeal. Claims 1, 5, 9 and 14 are in independent form. For the purposes of this appeal, Claims 1-8 stand or fall together, and Claims 9-18 stand or fall together.

STATUS OF AMENDMENTS

A Request for Reconsideration, which did not contain any claim amendments, was filed on December 23, 2005. The arguments contained in the Request for Reconsideration were considered by the Examiner as set forth in the Advisory Action dated January 20, 2006.

SUMMARY OF CLAIMED SUBJECT MATTER

The invention as recited in Claim 1 relates to a signal transmitting apparatus for cell search in a mobile communication system.

The apparatus contains a primary synchronization channel (P-SCH) transmitter (FIG. 4: 411 and 413) for placing a first synchronization code at the start of each of a plurality of slots which forms one P-SCH frame to provide slot synchronization and for transmitting the P-SCH. (Specification "S" at page 6, line 26 – page 7, line 5.)

The apparatus also contains a secondary synchronization channel (S-SCH) transmitter (FIG. 4: 415, 417 and 419) for transmitting a base station group specific code at the start of each slot in an S-SCH frame and a base station specific code following the base station group specific code in at least one slot, the base station group specific code representing one of the base station groups and the base station specific code representing one of the base stations in the base station group. (S at page 7, lines 7-17.)

Finally, in the apparatus, the correlation and detection operations of the cell search are performed in two steps and without receiving a broadcast control channel (BCCH). (S at page 15,

lines 22-25.)

The invention as recited in Claim 5 relates to a method for transmitting a signal for cell search in a mobile communication system.

The method includes transmitting a first synchronization code at the start of each of a plurality of slots which forms one P-SCH frame to provide slot synchronization and for transmitting the P-SCH. (S at page 6, line 26 – page 7, line 5.)

The method includes transmitting a base station group specific code at the start of each slot in an S-SCH frame, the base station group specific code representing one of the base station groups, and transmitting a base station specific code following the base station group specific code in at least one slot, the base station specific code representing one of base stations in the base station group. (S at page 7, lines 7-17.)

Finally, in the method, the correlation and detection operations of the cell search are performed in two steps and without receiving a broadcast control channel (BCCH). (S at page 15, lines 22-25.)

The invention as recited in Claim 9 relates to a cell search apparatus in a mobile communication system, which is slot time-synchronized by receiving a first synchronization code in each slot of a P-SCH frame and in addition receives over the slots of an S-SCH frame a base station group specific code representing one of base station groups and a base station specific code representing one of base stations in the base station group.

The cell search apparatus contains a base station group specific code detecting unit (FIG. 6: 619, 621, 623 and 625) that detects the base station group specific code received on the S-SCH in the slot-synchronized state. (S at page 11, line 10 – page 13, line 4.)

The cell search apparatus also contains a base station specific code detecting unit (FIG. 6: 627 and 629) that detects the base station specific code received, the base station specific code received following the base station group specific code. (S at page 11, line 10 – page 13, line 4.)

Finally, in the cell search apparatus, the correlation and detection operations of the cell search are performed in two steps and without receiving a broadcast control channel (BCCH). (S at page 15, lines 22-25.)

The invention as recited in Claim 14 relates to a method of cell searching in a mobile communication system, which is slot time-synchronized by receiving a first synchronization code in each slot of a P-SCH frame and in addition receives over the slots of an S-SCH frame a base station group specific code representing one of base station groups and a base station specific code representing one of base stations in the base station group. (S at page 11, line 10 – page 13, line 4.)

Claims 1 and 5 relate to an apparatus and method that transmits signals used during a cell search. Claims 9 and 14 relate to an apparatus and method for conducting a cell search using the signals transmitted from an apparatus or by a method similar to that embodied in Claims 1 and 5. These distinctions provide at least one basis for grouping the claims that stand and fall together.

GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1-12 and 14-17 under 35 U.S.C. §102(e) are anticipated by U.S. Patent 6,504,830 to Ostberg et al. ("Ostberg").

Whether Claims 13 and 18 under 35 U.S.C. §103(a) are unpatentable over Ostberg in view of U.S. Patent 6,526,091 to Nystrom et al. ("Nystrom").

ARGUMENT

The Examiner rejected Claims 1-12 and 14-17 under 35 U.S.C. §102(e) as being anticipated by Ostberg. The Examiner rejected Claims 13 and 18 under 35 U.S.C. §103(a) as being unpatentable over Ostberg et al. in view of Nystrom.

1. Independent Claims 1 and 5 are not anticipated by Ostberg

Independent Claims 1 and 5 were said to be anticipated by Ostberg.

Claim 1 recites a signal transmitting apparatus for cell search in a mobile communication system. The signal transmitting apparatus contains at least a primary synchronization channel (P-

SCH) transmitter and a secondary synchronization channel (S-SCH) transmitter. Claim 5 is a method claim embodied in the apparatus of Claim 1.

The P-SCH transmitter transmits one (1) code, a first synchronization code. The first synchronization code is placed at the start of each of a plurality of slots that form one P-SCH frame. The first synchronization code is provided for slot synchronization purposes.

The S-SCH transmitter transmits two (2) codes: a base station group specific code and a base station specific code. The base station group specific code is placed at the start of each slot in an S-SCH frame; and, the base station specific code is placed following the base station group specific code in at least one slot. The base station group specific code represents one of the base station groups. The base station specific code represents one of the base stations in the base station group.

A cell search using the three (3) codes (the first synchronization code, the base station group specific code and the base station specific code), transmitted on the two (2) channels (the P-SCH and the S-SCH), are performed in two steps.

The cell search is performed without receiving a broadcast control channel (BCCH), which contains long codes.

1.A. The BCCH must be received by the Ostberg device

Ostberg discloses a method, apparatus and system for fast base synchronization and sector identification. In order for the apparatus disclosed in Ostberg to determine a sector when identification of the long code group does not result in the identification of the sector, the apparatus ***must*** use the pilot symbols of the long code to determine the sector, as explained in Fig. 3A and at col. 6, lines 14-21 and col. 7, lines 6-13. The pilot symbols of the long codes are, by definition, transmitted over the same channel as the long code. This channel is the BCCH. In order for Ostberg to determine the sector, the primary synchronization code through Perch 1 must be received, the secondary synchronization code through Perch 2 must be received, ***and*** the pilot symbols associated with the long codes must be received and are then needed to identify the sector, as explained in Fig. 3A and at col. 6, lines 14-21 and col. 7, lines 6-13. Ostberg admits that for conventional sector identification the BCCH needs to be decoded. (See Ostberg at col. 3, line 66 – col. 4, line 11.) Ostberg states that its apparatus can identify a sector without having to decode the BCCH. (See Ostberg SUMMARY and Claims 14 and 15.) Although there is no need in Ostberg to ***decode*** the

BCCH, the apparatus of Ostberg does in fact need to ***receive*** the BCCH to perform its operations.

Fig. 3A of Ostberg is described as illustrating "a portion of the Perch 1 channel ***to which a BCCH is mapped***" (emphasis added). (See col. 5, lines 14-15, and its further description at col. 6, lines 10-35.) For example, in a 3rd Generation Partnership Project (3GPP) system, pilot symbols broadcast over the broadcast channel are coded with a channelization code '111...11'(all ones) from a base station to a mobile station; thus mobile station just receives the pilot symbols without 'decoding', because the mobile station already knows the channelization code is '111...11' (all ones). Therefore, the apparatus of Ostberg requires receipt of the BCCH in order to perform its operations.

The device in Ostberg is required to ***receive and use*** the BCCH in order to perform its synchronization. The reception of the BCCH in Ostberg and the use of the pilot symbols contained in the BCCH is essential to the process disclosed by Ostberg, as disclosed at col. 6, lines 17-21, which states that the pilot symbols (received over the BCCH) are used in the multiplication process.

Throughout prosecution, it has been the position of the Examiner that receiving the BCCH and using the information contained in the BCCH, but not decoding the BCCH, is the same as not receiving the BCCH as recited in Claim 1 of the present application. (See Office Action mailed August 23, 2005, "Response to Arguments" and "Claim Rejections".) As set forth above, Ostberg does not support this conclusion.

1.B. Ostberg requires three (3) steps to perform its sector identification and synchronization

Claim 1 of the present application recites that the correlation and detection operations of the cell search are performed in two steps.

Fig. 4 of Ostberg sets forth the steps required to perform its sector identification and synchronization. (See Ostberg col. 5, lines 20-21.) First, slot synchronization is performed in step 410. Second, the frame boundary is detected and the long code group is identified in step 420. Third, the long code is identified in step 430. Fourth, correlation and detection is performed in step 440.

A comparison of the processes of Ostberg (as defined by Fig. 4) and Claim 1 of the present application clearly illustrates the patentable distinctions.

Fig 4 of Ostberg	Ostberg	Claim 1 of the present application
410	Primary synchronization code through Perch 1	First synchronization code through primary synch channel
420	Secondary synchronization code through Perch 2	Base station group specific code & base station specific code through a secondary synch channel
430	Pilot symbols through BCCH	
440	Correlate and detect	

The Examiner opined that the correlation and detection operations are performed in two separate steps by the Ostberg device. (See Advisory Action mailed January 20, 2006, and Office Action mailed August 23, 2005, "Response to Arguments" and "Claim Rejections".) The Examiner relies on Fig. 4 in support for his position, namely that element 440 and element 420 of Fig. 4 disclose the correlation and detection of the independent claims of the present application.

In Claim 1 of the present application, a first synchronization code is received through a primary synch channel, and a base station group specific code ***and*** a base station specific code are received through a secondary synch channel. Therefore, by receiving the three codes, and in particular, the base station specific code, the third step, step 430, of Ostberg is never needed to be performed when practicing Claim 1 of the present application.

1.C. Ostberg requires three (3) channels to transmit all of the codes required to perform its sector identification and synchronization

Claim 1 of the present application recites that a base station specific code is transmitted on the P-SCH, and recites that the base station specific code and a base station group specific code are transmitted on the S-SCH. Thus Claim 1 recites that only two (2) channels are required to transmit the information required to perform its cell search.

As outlined above in Sections 1.A and 1.B, Ostberg requires the primary synchronization code through Perch 1, the secondary synchronization code through Perch 2, ***and*** the pilot symbols associated with the long codes through the BCCH. Thus Ostberg requires three (3) channels to

transmit its information required to perform its cell search.

The use of two (2) channels is not anticipated by the use of three (3) channels.

It is well settled that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); and, that "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Examiner has failed to show that each and every element of Claims 1 and 5, and in as complete detail as is contained therein, are taught in or suggested by the prior art. The Examiner has failed to make out a prima facia case for an anticipation rejection.

Independent Claims 1 and 5 are not anticipated by Ostberg, and thus Claims 1-8 are allowable.

2. Independent Claims 9 and 14 are not anticipated by Ostberg

Independent Claims 9 and 14 were said to be anticipated by Ostberg.

Claim 9 of the present application recites a cell search apparatus in a mobile communication system. Claim 14 is a method claim embodied in the apparatus of Claim 9.

The cell search apparatus is slot time-synchronized by receiving a first synchronization code in each slot of a P-SCH frame. The cell search apparatus in addition receives over the slots of an S-SCH frame a base station group specific code representing one of base station groups and a base station specific code representing one of base stations in the base station group.

The cell search apparatus includes a base station group specific code detecting unit that detects the base station group specific code received on the S-SCH in the slot-synchronized state.

The cell search apparatus also includes a base station specific code detecting unit that detects the base station specific code also received on the S-SCH, the base station specific code received following the base station group specific code.

A cell search using the three (3) codes (the first synchronization code, the base station group specific code and the base station specific code), transmitted on the two (2) channels (the P-SCH and

the S-SCH), are performed in two steps.

The cell search is performed without receiving a broadcast control channel (BCCH), which contains long codes.

2.A. The BCCH must be received by the Ostberg device

Ostberg discloses a method, apparatus and system for fast base synchronization and sector identification. As set forth above in Section 1.A, in order for the apparatus disclosed in Ostberg to determine a sector when identification of the long code group does not result in the identification of the sector, the apparatus ***must*** use the pilot symbols of the long code to determine the sector, as explained in Fig. 3A and at col. 6, lines 14-21 and col. 7, lines 6-13. The pilot symbols of the long codes are, by definition, transmitted over the same channel as the long code. This channel is the BCCH. In order for Ostberg to determine the sector, the primary synchronization code through Perch 1 must be received, the secondary synchronization code through Perch 2 must be received, ***and*** the pilot symbols associated with the long codes must be received and are then needed to identify the sector, as explained in Fig. 3A and at col. 6, lines 14-21 and col. 7, lines 6-13. Ostberg admits that for conventional sector identification the BCCH needs to be decoded. (See Ostberg at col. 3, line 66 – col. 4, line 11.) Ostberg states that its apparatus can identify a sector without having to decode the BCCH. (See Ostberg SUMMARY and Claims 14 and 15.) Although there is no need in Ostberg to ***decode*** the BCCH, the apparatus of Ostberg does in fact need to ***receive*** the BCCH to perform its operations.

Fig. 3A of Ostberg is described as illustrating "a portion of the Perch 1 channel ***to which a BCCH is mapped***" (emphasis added). (See col. 5, lines 14-15, and its further description at col. 6, lines 10-35.) For example, in a 3rd Generation Partnership Project (3GPP) system, pilot symbols broadcast over the broadcast channel are coded with a channelization code '111...11'(all ones) from a base station to a mobile station; thus mobile station just receives the pilot symbols without 'decoding', because the mobile station already knows the channelization code is '111...11' (all ones). Therefore, the apparatus of Ostberg requires receipt of the BCCH in order to perform its operations.

The device in Ostberg is required to ***receive and use*** the BCCH in order to perform its synchronization. The reception of the BCCH in Ostberg and the use of the pilot symbols contained in

the BCCH are essential to the process disclosed by Ostberg, as disclosed at col. 6, lines 17-21, which states that the pilot symbols (received over the BCCH) are used in the multiplication process.

Throughout prosecution, it has been the position of the Examiner that receiving the BCCH and using the information contained in the BCCH, but not decoding the BCCH, is the same as not receiving the BCCH as recited in Claim 9 of the present application. (See Office Action mailed August 23, 2005, "Response to Arguments" and "Claim Rejections".) As set forth above, Ostberg does not support this conclusion.

2.B. Ostberg requires three (3) steps to perform its sector identification and synchronization

Claim 9 of the present application recites that the correlation and detection operations of the cell search are performed in two steps.

As set forth above in Section 1.B, Fig. 4 of Ostberg sets forth the steps required to perform its sector identification and synchronization. (See Ostberg col. 5, lines 20-21.) First, slot synchronization is performed in step 410. Second, the frame boundary is detected and the long code group is identified in step 420. Third, the long code is identified in step 430. Fourth, correlation and detection is performed in step 440.

A comparison of the processes of Ostberg (as defined by Fig. 4) and Claim 9 of the present application clearly illustrates the patentable distinctions.

<table>
<tr><th>Fig 4 of Ostberg</th><th>Ostberg</th><th>Claim 9 of the present application</th></tr>
<tr><td>410</td><td>Primary synchronization code through Perch 1</td><td>First synchronization code through primary synch channel</td></tr>
<tr><td>420</td><td>Secondary synchronization code through Perch 2</td><td rowspan="2">Base station group specific code & base station specific code through a secondary synch channel</td></tr>
<tr><td>430</td><td>Pilot symbols through BCCH</td></tr>
<tr><td>440</td><td colspan="2">Correlate and detect</td></tr>
</table>

The Examiner opined that the correlation and detection operations are performed in two separate steps by the Ostberg device. (See Advisory Action mailed January 20, 2006, and Office

Action mailed August 23, 2005, "Response to Arguments" and "Claim Rejections".) The Examiner relies on Fig. 4 in support for his position, namely that element 440 and element 420 of Fig. 4 disclose the correlation and detection of the independent claims of the present application.

In Claim 9 of the present application, a first synchronization code is received through a primary synch channel, and a base station group specific code ***and*** a base station specific code are received through a secondary synch channel. Therefore, by receiving the three codes, and in particular, the base station specific code, the third step, step 430, of Ostberg is never needed to be performed when practicing Claim 9 of the present application.

2.C. Ostberg requires three (3) channels to transmit all of the codes required to perform its sector identification and synchronization

Claim 9 of the present application recites that a base station specific code is received on the P-SCH, and recites that the base station specific code and a base station group specific code are received on the S-SCH. Thus Claim 9 recites that only two (2) channels are required to receive the information required to perform its cell search.

As outlined above in Sections 2.A and 2.B, Ostberg requires the primary synchronization code through Perch 1, the secondary synchronization code through Perch 2, ***and*** the pilot symbols associated with the long codes through the BCCH. Thus Ostberg requires three (3) channels to receive its information required to perform its cell search.

The use of two (2) channels is not anticipated by the use of three (3) channels.

It is well settled that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); and, that "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Examiner has failed to show that each and every element of Claims 9 and 14, and in as complete detail as is contained therein, are taught in or suggested by the prior art. The Examiner has

failed to make out a prima facia case for an anticipation rejection.

Independent Claims 9 and 14 are not anticipated by Ostberg, and thus Claims 9-18 are allowable.

3. Dependent Claims 13 and 18 are not unpatentable over Ostberg in view of Nystrom

Dependent Claims 13 and 18 were said to be unpatentable over Ostberg in view of Nystrom. Without conceding the patentability per se of dependent Claims 13 and 18, these are likewise believed to be allowable by virtue of their dependence on their respective amended independent claims.

CONCLUSION

Based on at least the foregoing, as the Examiner has failed to make out a prima facia case for an anticipation rejection, the rejection of Claims 1-18 must be reversed.

It is well settled that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); and, that "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Examiner has failed to show that each and every element of Claims 1-18, and in as complete detail as is contained therein, are taught in or suggested by the prior art. The Examiner has failed to make out a prima facia case for an anticipation rejection.

Claim 1-18 are not anticipated by Ostberg, thus Claims 1-18 are allowable.

Dated: September 20, 2006

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CLAIMS APPENDIX

1. (Previously Presented) A signal transmitting apparatus for cell search in a mobile communication system, comprising:

a primary synchronization channel (P-SCH) transmitter for placing a first synchronization code at the start of each of a plurality of slots which forms one P-SCH frame to provide slot synchronization and for transmitting the P-SCH; and

a secondary synchronization channel (S-SCH) transmitter for transmitting a base station group specific code at the start of each slot in an S-SCH frame and a base station specific code following the base station group specific code in at least one slot, the base station group specific code representing one of the base station groups and the base station specific code representing one of the base stations in the base station group,

wherein correlation and detection operations of the cell search are performed in two steps and without receiving a broadcast control channel (BCCH).

2. (Original) The signal transmitting apparatus of claim 1, further comprising a broadcast channel (BCH) transmitter for mapping system information of the base station on the S-SCH for transmission.

3. (Original) The signal transmitting apparatus of claim 1, wherein the S-SCH transmitter inserts each symbol of the base station group specific code in each slot of the frame.

4. (Original) The signal transmitting apparatus of claim 1, wherein the base station specific code is one of a synchronization codes which represent the base station BCH spreading code.

5. (Previously Presented) A signal transmitting method for cell search in a mobile communication system, comprising the steps of:

transmitting a first synchronization code at the start of each of a plurality of slots which forms one P-SCH frame to provide slot synchronization and for transmitting the P-SCH; and

transmitting a base station group specific code at the start of each slot in an S-SCH frame, the base station group specific code representing one of the base station groups, and transmitting a base station specific code following the base station group specific code in at least one slot, the base station specific code representing one of base stations in the base station group,

wherein correlation and detection operations of the cell search are performed in two steps and without receiving a broadcast control channel (BCCH).

6. (Original) The signal transmitting method of claim 5, further comprising the step of mapping system information of the base station on the S-SCH with a BCH and transmitting the BCH.

7. (Original) The signal transmitting method of claim 5, wherein each symbol of the base station group specific code is inserted in each slot of the frame in the S-SCH transmitting step.

8. (Original) The signal transmitting method of claim 5, wherein the same synchronization code is inserted into each slot of the frame to transmit the base station specific code in the S-SCH transmitting step.

9. (Previously Presented) A cell search apparatus in a mobile communication system, which is slot time-synchronized by receiving a first synchronization code in each slot of a P-SCH frame and in addition receives over the slots of an S-SCH frame a base station group specific code representing one of base station groups and a base station specific code representing one of base stations in the base station group, the apparatus comprising:

a base station group specific code detecting unit that detects the base station group specific code received on the S-SCH in the slot-synchronized state; and

a base station specific code detecting unit that detects the base station specific code received, the base station specific code received following the base station group specific code,

wherein correlation and detection operations of the cell search are performed in two steps and without receiving a broadcast control channel (BCCH).

10. (Original) The cell search apparatus of claim 9, wherein the base station group specific code detecting unit comprises:

a correlator for calculating a correlation of the base station group specific code received in each slot of the S-SCH frame; and

a base station group detector for determining the base station group using specific codes corresponding to maxima of correlations detected from the slots.

11. (Original) The cell search apparatus of claim 10, wherein the base station group detector comprises:

a cyclic shift operator for cyclic-shift operating the correlations and comparing the cyclically shifted correlation values with a comma free code table; and

a maximum correlation detector for detecting a synchronization code corresponding to a maximum of the cyclic-shift operated correlations.

12. (Original) The cell search apparatus of claim 11, wherein the base station specific code detecting unit comprises:

a correlator for calculating a correlation of the base station specific code received in each slot of the S-SCH frame; and

a base station detector for determining the base station using a specific code corresponding to a maximum of correlations detected from the slots.

13. (Original) The cell search apparatus of claim 12, wherein the correlator calculates the correlations by Hadamard transformation with respect to a predetermined number of synchronization codes.

14. (Previously Presented) A cell search method in a mobile communication system which is slot time-synchronized by receiving a first synchronization code in each slot of a P-SCH frame and in addition receives over the slots of an S-SCH frame a base station group specific code representing one of base station groups and a base station specific code representing one of base stations in the base station group, the method comprising the steps of:

detecting the base station group specific code received on the S-SCH in the slot-synchronized state; and

detecting a transmitting base station by detecting the base station specific code received, the base station specific code received following the base station group specific code,

wherein correlation and detection operations of the cell search are performed in two steps and without receiving a broadcast control channel (BCCH).

15. (Original) The cell search method of claim 14, wherein the base station group specific code detecting step comprises the steps of:

calculating a correlation of the base station group specific code received in each slot of the S-SCH frame; and

determining the base station group using specific codes corresponding to maxima of correlations detected from the slots.

16. (Original) The cell search method of claim 15, wherein the base station group determining step comprises the steps of:

cyclic-shift operating the correlations and comparing the cyclically shifted correlation values with a comma free code table; and

detecting a synchronization code corresponding to a maximum of the cyclic-shift operated correlations.

17. (Original) The cell search method of claim 14, wherein the base station specific code detecting step comprises the steps of:

calculating a correlation of the base station specific code inserted in at least one slot of the S-SCH frame; and

accumulating correlations and determining the base station using a specific code corresponding to a maximum of the accumulated correlations.

18. (Original) The cell search method of claim 17, wherein the correlations are calculated by Hadamard transformation with respect to a predetermined number of synchronization codes.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to 37 C.F.R. 1.130, 1.131, 1.132 or entered by the Examiner and relied upon by Appellant.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 C.F.R. 41.37.